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ABSTRACT

Research designed to analyze the effect of achievement motivation and gender as determinants of attributions for success and failure is described. One-hundred and twenty male and female subjects, divided according to levels of achievement motivation, were asked to do an anagram task at which they were made to succeed or fail. Ratings of ability, effort, task difficulty, and luck, as possible causes for success or failure, indicated that those with high achievement motivation of both sexes made relatively higher ratings for ability and lower ratings for task difficulty. Females tended to employ higher ratings for luck, and females with high achievement motivation made more use of effort as a causal factor than men. High achievement motivation males had a very high estimate of their own abilities. The male and female low achievement-motivated groups tended to be similiar, although the women tended to make more use of task difficulty in explaining failure and had somewhat higher rating of their abilities. The low achievement-motivated males saw ability as the primary determinant of outcome. (Author/DE)

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ACHIEVEMENT MOTIVATION AND GENDER AS DETERMINANTS OF ATTRIBUTIONS FOR SUCCESS AND FAILURE

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Abstract

Male and female subjects, divided according to levels of achievement motivation, were asked to do an anagram task at which they were made to succeed or fail. Ratings of ability, effort, task difficulty, and luck, as possible causes for success or failure, indicated that those with high achievement motivation of both sexes made relatively higher ratings for ability and lower ratings for task difficulty. Females tended to employ higher ratings for luck, and females with high achievement motivation made maximal use of effort as a causal factor. Theoretical implications and potential applications of these data are discussed.

ACHIEVEMENT MOTIVATION AND GENDER AS DETERMINANTS OF ATTRIBUTIONS FOR SUCCESS AND FAILURE

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Recent work concerned with perceptions of the causes of success and failure has demonstrated the utility of this attributional approach for understanding individual differences in achievement-oriented behavior. People do differ in their causal attributions for success and failure, and the attributions made in a particular achievement situation have been shown to effect both expectancies for the future and affect (Kukla, 1972a; McMahan, 1973; Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971; Weiner, Heckhausen, Meyer, & Cook, 1972). Potentially, there are a number of factors which might be cited as causes of an achievement outcome. A person might, for example, experience a particular success as caused by high ability, trying hard, good luck, the ease of the task, and/or the help of other people. Conversely, attributions for failure might be low ability, not trying sufficiently hard, bad luck, being in a bad mood, the difficulty of the task, and/or the interference of other people (see Frieze, in press-a; Weiner, 1974). Studies have suggested that it is the differential utilization of these causal factors in interpreting one's own outcomes which explains behavioral differences in people labeled as having high as compared to low achievement motivation (Kukla, 1972a; Weiner et al., 1971) and in males as compared to females (Frieze, Fisher, McHugh, & Valle, Note 1; McMahan, Note 2). The following study analyzes attributional patterns and behavior in an achievement situation as a simultaneous function of both levels of achievement motivation and gender.

The causal factors used to explain success and failure were classified by Weiner et al. (1971) into two dimensions. Some causes originate within the person and are therefore internal causes. These would include ability and effort. Other causes such as task difficulty and luck originate outside the person and are therefore external causes. Studies have demonstrated that more pride (self-satisfaction) for success and more shame (self-dissatisfaction) for failure is experienced for events attributed to internal as compared to external causes (Rosenbaum, 1972; Weiner et al., 1972). A second dimension along which these causal elements can be classified is their relative stability over time. Ability and task difficulty do not vary (and are therefore stable) if the same task is reattempted, while effort and luck are highly changeable (unstable). The stability of the causal factor to which an outcome is attributed directly affects expectations for future outcomes. When stable attributions are made, one expects current success levels to continue. Unstable causes produce expectations for changing outcomes (Weiner, 1974; Weiner et al., 1972).

These two dimensions for classifying causal attributions have been found to be useful for understanding implications of differential causal attributions made by high as compared to low achievement motivated people and by males as compared to females. Kukla (1972a) demonstrated that high achievement motivated men (HM) tend to attribute their successes to both high ability and effort, while they perceive their failures as due to lack of effort. The attribution of failure to lack of effort would lead to greater subsequent trying and thus readily explains the motivating effects of failure for high achievement motivated males (Weiner, 1972). Also, high achievement motivation is generally associated with higher estimates of personal ability (Kukla, 1972a). Low achievement motivated male subjects (LM) are less likely to see their successes as due to internal causes but see failures as caused by their low ability (Weiner & Kukla, 1970; Weiner & Potepan, 1970). These patterns suggest that males with high

achievement motivation feel more pride in their successes and are motivated to work harder when they fail, while those with low achievement motivation feel less pride in success and tend not to persist in failure situations. These derivations support the general findings in the achievement motivation literature for males (Weiner, 1972).

Although the data are somewhat ambiguous for sex differences, a number of studies have reported some differences in the categories of causes used by females as compared to males in explaining their successes and failure. Women appear to have attributional patterns which give them less pride and more shame and produce low expectations for success (see Frieze, in press-b; Frieze et al., Note 1). Several studies have shown women to rely more than men upon luck as a causal explanation for both success and failure (e.g., Feather, 1969; Simon & Feather, 1973). These findings refer to achievement within areas such as academic achievement and imply that at least for these types of achievement, women, because of their high use of external luck as a causal explanation, take less responsibility for and feel less pride in their successes and less shame about their failures.

The tendency of women to attribute academic achievement outcomes to external factors more than men do is further seen in studies which consider attributions for success and failure separately. McMahan (Note 2) and Frieze (1973) found a trend for women to be less likely than men to attribute successful events to their own abilities. This is consistent with their greater use of luck as a causal explanation (Feather, 1969). This tendency also corresponds with the generally lower expectancies and estimates of their abilities reported by females of all ages (see Frieze, in press-b). Women who attribute their successes more to luck and less to their abilities would feel less pride in their successes and would have lower expectancies for continued successes since luck is not only external but unstable. If this pattern is a common one for women, it would not be difficult to

understand why more women do not attempt to excel in achievement situations: success brings few cognitive rewards for the woman with this attributional pattern. Considering the generally low expectancies of women (Frieze, in press-b; Frieze et al., Note 1), it is plausible to predict that women would also be likely to attribute failures to lack of ability. This hypothesis has been supported by a few studies (although there are ambiguities in the data; see Frieze et al., Note 1). McMahan (Note 2) noted that women were more likely than men to attribute failures to lack of ability, while Nichols (1975) found a similar pattern for girls. Thus, the data suggest that at least some women not only devalue their abilities, but also attribute their failures to lack of ability or to some other internal factor such as lack of effort. Since ability is a stable characteristic, this attributional pattern would indicate that these women would be unmotivated to reattempt tasks at which they had experienced failure because of low expectancies. Attributions to either low ability or lack of effort should also imply high levels of shame as a result of failure. These reactions to failure may be yet another factor contributing to the lower achievements and expectancies of women.

One explanation for some of the contradictory data relating to sex differences in attributional patterns may be that males and females are typically considered as two internally homogeneous groups (see Frieze et al., Note 1). Data on high and low achievement motivated males indicate that there are wide variations in the attributions made by different men and that achievement motivation is an important variable in understanding these differences. It may be that high achievement motivated women (HF) also have a somewhat different pattern from the usual pattern associated with women. High achievement women are clearly different in many other ways from more traditional women, since achievement itself is not considered feminine, given the stereotypes of femininity held by most people in our society (Broverman, Vogel, Broverman, Clarkson, & Rosenkrantz, 1972).

Observations of professional women indicate that they work very hard and are highly motivated to succeed. In fact, some writers (Bird, 1968; Epstein, 1971) suggest that those women feel that they must be better than the men they compete with in their professional work in order to experience any career success. The pattern of hard work as a basis for achievement in professional women suggests that such women would perceive their successes and failures to be dependent upon effort rather than upon luck or other causal factors. However, the data indicating that nearly all women have lower estimates of their own abilities than men would also lead to the hypothesis that even high achievement motivated women lack the positive belief in their own abilities which characterizes the high achievement motivated man.

The following study was undertaken to explore the attributional patterns of high and low achievement motivated women and to compare these patterns with those of men. It was hypothesized that both HM and HF would tend to employ effort attributions but that the highly motivated males would have higher estimates of their ability than the highly motivated females and would attribute success more to stable factors. No hypotheses were made about LM and LF except that these groups were expected to use more stable attributions for failure than the HM and HF.

Method

Subjects

The subjects were 125 students recruited from introductory psychology and geology classes as volunteers. Five subjects misread the instructions and were elininated from the analysis. This resulted in 60 male and 60 female subjects who were run in groups of 4 to 8 by two male experimenters.

Procedure

Subjects were first given the Revised and Condensed Achievement Scale (Mehrabian, 1969; see Appendix A). This scale consists of 26 items (with a male and female version) and requires the subject to agree or disagree to a series of statements, with alternative responses ranging from +3 (strong agreement) to -3 (strong disagreement). After completion of this scale, subjects were given a set of 25 anagrams (groups of letters which had to be rearranged to form a meaningful English word) with 30 seconds to solve each one. The difficulty level of the anagrams was experimentally manipulated so that half the subjects received very easy anagrams which they were able to successfully solve, while the other half of the subjects received very difficult anagrams which created a failure condition for them (see Appendix B). The overall success or failure manipulation was strengthened by having subjects state on the posttest whether they had succeeded or failed on the anagram task.

After finishing the anagram task, subjects were given a post-experimental questionnaire (see Appendix C) which asked their attributions on 7-point Likert-type scales anchored at both extremes and at the midpoint: (a) Ability--"How much ability do you think you have at this sort of task?" (1 = none, 7 = very much); (b) Effort--"How hard did you try to succeed at this task?" (1 = none, 7 = very hard); (c) Task--"How hard did you think this task was?" (1 = very hard, 7 = not at all); (d) Luck--"Try to evaluate how lucky you were in your solving?" (1 = not at all, 7 = very lucky). In addition, subjects were asked to evaluate their performance at the task, to express their satisfaction with their performance, and to evaluate their expectancies for future performance at this type of task. Answers to the latter questions were also given on 7-point scales.

Results

Subjects were divided at the median into high and low achievement motivated groups separately within each condition.[1]

Overall Analysis of the Attributions

First, the four causal attributions (ability, effort, task, and luck) were analyzed by a 2 x 2 x 2 x 2 x 2 analysis of variance with three between- and two within-subject factors. The between-subject factors were Outcome, Gender, and Achievement Motivation, while the within-subject factors were Internality and Stability.[2] Results of this analysis are presented in Table 1. The results of the analysis yielded a number of main effects and interaction effects. In general, attributions in the success condition ($\bar{X}$ = 4.73) were higher than in the failure condition ($\bar{X}$ = 3.26; F = 154.38, p < .01), and high achievement motivated subjects ($\bar{X}$ = 4.16) made higher attributions than low achievement motivated subjects ($\bar{X}$ = 3.83; F = 7.73, p < .01). These high attributions indicated that the subjects in the success condition and the high achievement subjects tended to make overall higher attributions to high ability, high effort, ease of task, and luck.

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[1] The division of the subjects at the median into high and low achievement across all the conditions was almost identical to the division done within each condition.

[2] The Internality and Stability factors were based on Weiner et al. (1971) theorizing. Thus, for the Internality factor, ability and effort were considered as an internal level, while task and luck were considered as an external one. For the Stability factor, ability and task were considered as a stable level, while effort and luck were considered as an unstable level.

Table 1

Summary of Overall Analysis of Variance

of the Four Causes

Source	df	MS	F
Between Subjects			
Outcome (A)	1	259.60	154.38**
Gender (B)	1	1.75	1.04
Achievement (C)	1	13.00	7.73**
AXB	1	.00	.01
AXC	1	1.10	.66
BXC	1	.25	.15
AXBXC	1	3.17	1.88
Error	112	1.68	
Within Subjects			
Internality (D)	1	262.55	183.25**
AXD	1	5.85	4.08*
BXD	1	3.50	2.44
CXD	1	5.42	3.78
AXBXD	1	.75	.52
AXCXD	1	.10	.07
BXCXD	1	3.85	2.69
AXBXCXD	1	7.75	5.41*
Error	112	1.43	
Stability (E)	1	32.55	20.88**
AXE	1	55.35	35.37**
BXE	1	1.30	.83
CXE	1	30.50	19.49**
AXBXE	1	.9[illegible]	.59
AXCXE	1	.75	.48
BXCXE	1	.00	.00
AXBXCXE	1	.60	.38
Error	112	1.56	
DXE	1	69.77	45.95**
AXDXE	1	.35	.23
BXDXE	1	3.50	2.31
CXDXE	1	2.27	1.49
AXBXDXE	1	3.17	2.09
AXCXDXE	1	.10	.07
BXCXDXE	1	9.92	6.52
AXBXCXDXE	1	1.10	.73
Error	112	1.52	

*$p < .05$

**$p < .01$

An interaction effect between Outcome and Internality ($F = 4.08$, $p < .05$) indicated that while in the success condition subjects made somewhat higher attributions to internal than external causes ($\bar{X} = 5.36$ and $\bar{X} = 4.10$, respectively); in the failure condition the differences were greater ($\bar{X} = 4.11$ to internal causes and $\bar{X} = 2.41$ to external causes). An interaction effect between Outcome and Stability ($F = 35.37$, $p < .01$) showed that while in the success condition subjects made higher attributions to stable ($\bar{X} = 4.81$) than unstable ($\bar{X} = 4.65$) causes; in the failure condition subjects made lower attributions to stable causes ($\bar{X} = 2.66$) than unstable ones ($\bar{X} = 3.86$). The Achievement x Stability interaction effect ($F = 19.49$, $p < .01$) indicated that while the high achievement subjects made higher attributions ($\bar{X} = 4.15$) to stable causes than the low achievement subjects ($\bar{X} = 3.32$), the latter made higher attributions to unstable causes ($\bar{X} = 4.34$) than the former made ($\bar{X} = 4.17$). The Internality x Stability interaction effect ($F = 45.95$, $p < .01$) showed that overall subjects made higher attributions to the internal unstable cause, effort ($\bar{X} = 5.37$), than to the internal stable cause, ability ($\bar{X} = 4.09$). The attributions to the external stable cause, task ($\bar{X} = 3.37$), were similarly low, as was the external unstable cause, luck ($\bar{X} = 3.13$).

In addition, two four-way interactions also appeared to be significant: Outcome x Gender x Achievement x Internality ($F = 5.41$, $p < .05$) and Gender x Achievement x Internality x Stability ($F = 6.53$, $p < .05$). The implications of these interaction effects will be discussed in the next section.

Separate Analyses of the Dependent Variables

In order to find how each cause was utilized by the subjects and how they reacted to the outcome, separate analyses of variance were performed for each dependent variable. Thus, the four causal attribution ratings (ability, effort, task difficulty, and luck) and ratings for evaluation of the

performance, satisfaction, and expectations for future success made by each subject were treated as seven dependent variables in successive 2 x 2 x 2 analyses of variance (Outcome x Gender x Achievement Motivation). Results of these analyses are summarized in Table 2.

The outcome manipulation had the greatest effect upon attributions. Subjects in the success condition perceived themselves as having higher ability ($p < .01$), trying harder ($p < .05$), being luckier ($p < .01$), and as believing the task was easier ($p < .01$) than subjects in the failure condition. Successful subjects also evaluated their performance as more successful ($p < .01$), were more satisfied with their performance ($p < .01$), and had higher expectancies for future success ($p < .01$) than subjects who experienced failure.

The individual difference variables of achievement motivation and gender had less overall effect upon attributions than the manipulation of success and failure. In general, high achievement motivated subjects tended to have significantly higher estimates of their abilities than low achievement motivated subjects ($p < .05$) and viewed the task as less difficult ($p < .01$). There were few sex differences independent of achievement level; the only one reaching significance was the tendency for women to employ higher luck ratings ($p < .05$).

There were several significant interactions. The Gender x Achievement Interaction ($p < .05$) indicated that the HM group had the highest estimates of their abilities ($\bar{X} = 4.53$), while the LM group ($\bar{X} = 3.63$) had the lowest estimates of all groups. The female means were intermediate. A posttest analysis of means indicated that differences between HM and HF ($\bar{X} = 4.53$ and $\bar{X} = 4.13$) and between LM and LF ($\bar{X} = 3.63$ and $\bar{X} = 4.23$) were also significant ($p < .05$) for one-tailed t-tests. The three-way interaction of Outcome x Gender x Achievement for ability ratings ($p < .01$) showed that the rating differences were maximized for failure. Means are shown in Table 3.

Table 2

Summary of Separate Analyses of Variance

for Each Dependent Measure

Source of Variance	df	F Values						
		Ability	Effort	Task	Luck	Evaluation of Performance	Satisfaction	Future Performance
Outcome (A)	1,112	85.53**	4.53*	128.20**	19.01**	169.40**	132.12**	74.89**
Gender (B)	1,112	.01	.23	.01	5.37*	1.4	2.83	1.58
Achievement (C)	1,112	5.08*	1.06	33.45**	.18	.16	.02	3.00
AXB	1,112	.73	1.70	.01	.46	.01	.96	.02
AXC	1,112	.01	.23	.01	.91	4.54*	.71	.10
BXC	1,112	3.77*	.38	6.38*	.07	.30	1.96	2.01
AXBXC	1,112	7.40**	1.06	.33	.07	.50	.02	.40

*$p < .05$
**$p < .01$

Table 3

Mean Rating Scores for Each Variable

Dependent Variables	Success				Failure			
	Males		Females		Males		Females	
	High Achievers	Low Achievers	High Achievers	Low Achievers	High Achievers	Low Achievers	High Achievers	Low Achievers
Ability	5.33	5.00	5.33	4.67	3.73	2.27	2.93	3.47
Effort	5.27	5.80	5.87	5.60	5.20	5.47	4.67	5.13
Task	4.93	4.13	5.33	3.73	2.47	1.93	3.13	1.33
Luck	3.60	3.33	3.87	3.87	2.07	2.40	2.80	3.13
Evaluation of Performance	5.27	5.00	5.27	4.47	2.20	2.53	1.93	2.33
Satisfaction	5.00	5.53	4.73	4.53	2.27	2.33	2.40	1.87
Future Performance	5.67	5.07	5.20	4.93	3.87	3.13	3.20	3.33

An interaction involving task ratings also attained significance ($p < .05$). The Gender x Achievement interaction indicated that HF saw the task as easiest ($\bar{X} = 4.70$), while LF rated the task as most difficult ($\bar{X} = 2.53$). The male means were intermediate ($\bar{X} = 3.70$ for HM and $\bar{X} = 3.03$ for LM). Also, HM rated the task as easier than LM, and HF rated the task as easier than LF.

In addition, the Outcome x Achievement interaction ($p < .05$) indicated that in the success condition high achievers evaluated their performance as more successful than low achievers ($\bar{X} = 5.27$ versus $\bar{X} = 4.73$), but in the failure condition low achievers evaluated their performance as more successful than high achievers ($\bar{X} = 2.43$ versus $\bar{X} = 2.07$).

Looking at causal attribution ratings within the four groups, Figure 1 also demonstrates the varying patterns of ratings within each group. All the groups attributed success more to internal causes. HM rated ability the highest. This is the only group to rate ability higher than effort in explaining success. HF perceived effort, task ease, and ability as relatively important determinants of success, while LM and LF rated effort followed by ability as strong causal factors. For failure, all groups rated an external factor as lowest. Thus, the lack of luck and the difficulty of the task were most commonly cited as causes of failure. Failure was primarily attributed to task difficulty by LF and LM, while HM and HF made somewhat more use of the unstable factor, luck. HF and HM also attributed failure to lack of ability.

Discussion

Results from this study support earlier data indicating that there are meaningful individual differences in causal attributions as a function of gender and achievement motivation. It should be pointed out that consistent with usual statistical practices, the individual differences refer only to the differences among the four groups because each group was

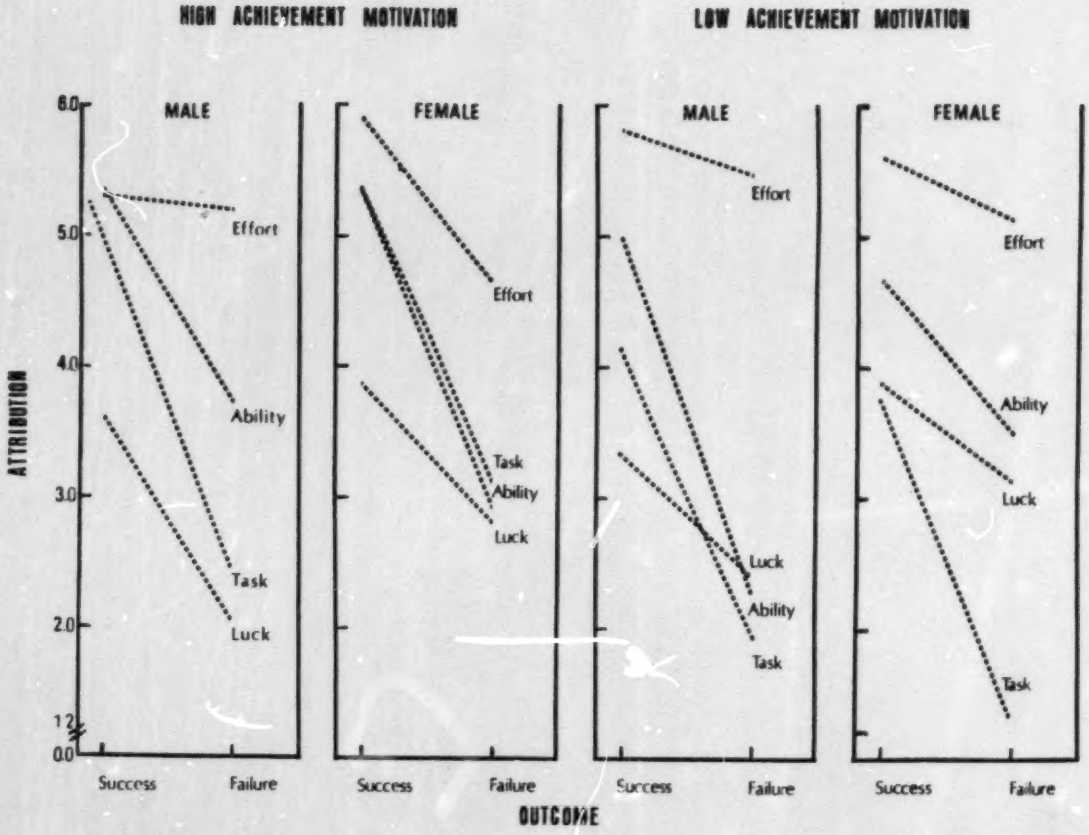

Figure 1. Attributions to ability, effort, task, and luck after success and failure for different groups.

treated as being internally homogeneous and the variance within each group was disregarded. These data further demonstrate that both these variables need to be considered together and that gender alone does not account for a large proportion of the variance. The only main effect for gender found was the previously reported tendency for females to make higher ratings for luck (e.g., Feather, 1969).

Many of the interaction effects involving gender and achievement replicated earlier findings and/or confirmed hypotheses of this study. The male with high achievement motivation had a very high estimate of his ability, as had been found in earlier studies (Kukla, 1972a; Weiner & Kukla, 1970; Weiner & Potepan, 1970). He also tended to attribute his successes primarily to ability and effort (replicating Frieze, 1973; Kukla, 1972a), but he saw failure as the result of external factors. The previously reported tendency of the high achievement motivated male to attribute his failure to lack of effort (Frieze, 1973; Kukla, 1972a) was not replicated in this study; instead the HM group reported high effort expenditure after both success and failure. Although the external attributions of the high male group for failure are inconsistent with some other research, this attributional pattern would still tend to maximize achievement striving since increased pride would be experienced for success and decreased shame for failure. Perhaps the anagrams task allowed subjects an accurate picture of their effort expenditures since subjects were able to perceive when they had been successful. Since the high achievers probably did try harder, they were aware of this and would attribute their failures to external factors rather than to themselves. Other studies (Kukla, 1972a) reporting lack of effort attributions involved number guessing tasks where effort exertion was not as clear since there was no direct feedback about success or failure.

This study supported the hypothesis that the high achievement motivated female has a very strong belief in effort as a causal factor for both

success and failure. The women from this group showed the only significant correlation of outcome with effort ratings ($r = .44$). Also, as predicted, they tended to be somewhat more external for success than the high males, which is consistent with the general external tendencies for females reported in other studies (e.g., Simon & Feather, 1973; Frieze et al., Note 1). The tendency for more use of effort attributions for high achieving women was reported in a recent paper by Feldman-Summers and Kiesler (1974) where people made causal judgments about other people's successes. In these Feldman-Summers and Kiesler studies, subjects of both sexes expected males to perform at a higher level but attributed greater motivation to females.

The male and female low achievement motivated groups tended to be similar, although the women tended to make maximal use of task difficulty in explaining failure and had somewhat higher ratings of their abilities. The low achievement motivated males saw ability as the primary determinant of outcome.

Another individual difference which also replicated earlier findings was the tendency of the high achievers to be more responsive to external factors as inhibitors or facilitators. Thus, the high achievement groups varied task difficulty more from success to failure and, therefore, appeared to utilize information about the task in a more meaningful way. Kukla (1972a) also found that males with high achievement motivation utilized more experimental information.

In light of the evidence that the perceptions of causes of success and failure influence the achievement-related behavior (cf. Bar-Tal, 1975), the findings of the present study are important for the understanding of achievement-related behavior of high and low achievement motivated males and females. These four groups differ in their attributions, and it is possible to assume that they also differ in achievement behavior.

The findings of this study which indicated that, in general, high achievement individuals attributed themselves as having higher ability and perceived the task as being easier than low achievement individuals confirm Kukla's (1972b) hypotheses derived from his theory of performance. He suggested that "the higher resultant achieving subject is characterized by the general disposition to attribute relatively high ability to himself, while the low resultant achiever has a general tendency to attribute relatively little ability to himself" (p. 462). According to Kukla's theory, perception of one's own ability, the task's perceived difficulty, and the experience of success or failure are the most important determinants of one's achievement-related behavior.

It seems that at this point we need studies which will relate causal perceptions of success and failure, as displayed by the four investigated groups, with differential achievement-related behavior. Such studies are essential in order to advance the attributional theory of achievement-related behavior.

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APPENDIX A

Mehrabian's Achievement Motivation Scale for Males

PERSONAL REACTION INVENTORY

The following questionnaire of personal attitudes consists of a number of items worded as: "I'd rather do (A) than (B)," such as, "I'd rather go swimming than go bowling." You are to indicate the extent of your agreement with each item using the scale below. Please note that if you give strong agreement to the statement, "I'd rather do (A) than (B)," this indicates that you prefer (A) much more than (B). If you give strong disagreement to that same statement, this indicates that you prefer (B) much more than (A).

Indicate, for each item, the extent of your agreement or disagreement with that item by circling the appropriate numeral (+3 to -3) in the space provided by each item.

+3 = strong agreement
+2 = moderate agreement
+1 = slight agreement
0 = neither agreement nor disagreement
-1 = slight disagreement
-2 = moderate disagreement
-3 = strong disagreement

1. I worry more about getting a bad grade than I think about getting a good grade. (-)
2. I would rather work on a task where I alone am responsible for the final product than one in which many people contribute to the final product. (+)
3. I more often attempt difficult tasks that I am not sure I can do than easier tasks I believe I can do. (+)
4. I would rather do something at which I feel confident and relaxed than something which is challenging and difficult. (-)
5. If I am not good at something I would rather keep struggling to master it than move on to something I may be good at. (+)
6. I would rather have a job in which my role is clearly defined by others and my rewards could be higher than average, than a job in which my role is to be defined by me and my rewards are average. (-)

7. I would prefer a well-written informative book to a good movie. (+)

8. I would prefer a job which is important, difficult, and involves a 50 percent chance of failure to a job which is somewhat important but not difficult. (+)

9. I would rather learn fun games that most people know than learn unusual skill games which only a few people would know. (-)

10. It is very important for me to do my work as well as I can even if it means not getting along well with my co-workers. (+)

11. For me the pain of getting turned down after a job interview is greater than the pleasure of getting hired. (-)

12. If I am going to play cards I would rather play a fun game than a difficult thought game. (-)

13. I prefer competitive situations in which I have superior ability to those in which everyone involved is about equal in ability. (-)

14. I think more of the future than of the present and past. (+)

15. I am more unhappy about doing something badly than I am happy about doing something well. (-)

16. In my spare time I would rather learn a game to develop skill than for recreation. (+)

17. I would rather run my own business and face a 50 percent chance of bankruptcy than work for another firm. (+)

18. I would rather take a job in which the starting salary is $10,000 and could stay that way for some time than a job in which the starting salary is $5,000 and there is a guarantee that within five years I will be earning more than $10,000. (-)

19. I would rather play in a team than compete with just one other person. (-)

20. The thing that is most important for me about learning to play the guitar is being able to play a musical instrument, rather than learning it to have a better time with my friends. (+)

21. I prefer multiple-choice questions on exams to essay questions. (-)

22. I would rather work on a commission which is somewhat risky with the possibility of making more than work on a fixed salary. (+)

23. I think that I hate losing more than I love winning. (-)

24. I would rather wait one or two years and have my parents buy me one gift than have them buy me several average gifts over the same period of time. (+)

25. If I were able to return to one of two incompleted tasks, I would rather return to the difficult than the easy one. (+)

26. I think more about my past accomplishments than about my future goals. (-)

Mehrabian's Achievement Motivation Scale for Females

PERSONAL REACTION INVENTORY

The following questionnaire of personal attitudes consists of a number of items worded as "I'd rather do (A) than (B)," such as, "I'd rather go swimming than go bowling." You are to indicate the extent of your agreement with each item using the scale provided below. Please note that if you give strong agreement to the statement, "I'd rather do (A) than (B)," this indicates that you prefer (A) much more than (B). If you give strong disagreement to that same statement, this indicates that you prefer (B) much more than (A).

Indicate, for each item, the extent of your agreement or disagreement with that item by placing the appropriate numeral in the space provided by each item.

+3 = strong agreement
+2 = moderate agreement
+1 = slight agreement
0 = neither agreement nor disagreement
-1 = slight disagreement
-2 = moderate disagreement
-3 = strong disagreement

1. I think more about getting a good grade than I worry about getting a bad grade. (+)
2. I more often attempt difficult tasks that I am not sure I can do than easier tasks I believe I can do. (+)
3. I would rather do something at which I feel confident and relaxed than something which is challenging and difficult. (-)
4. If I am not good at something I would rather keep struggling to master it than move on to something I may be good at. (+)
5. I would rather have a job in which my role is clearly defined by others and my rewards would be higher than average, than a job in which my role is to be defined by me and my rewards are average. (-)
6. My strongest feelings are aroused more by fear of failure than by hope of success. (-)
7. I would prefer a well-written informative book to a good movie. (+)

8. I would prefer a job which is important, difficult, and involves a 50 percent chance of failure to a job which is somewhat important but not difficult. (+)

9. I would rather learn fun games that most people know than learn unusual skill games which only a few people would know. (-)

10. It is very important for me to do my work as well as I can even if it means not getting along well with my co-workers. (+)

11. For me the pain of getting turned down after a job interview is greater than the pleasure of getting hired. (-)

12. If I am going to play cards I would rather play a fun game than a more difficult game. (-)

13. I prefer competitive situations in which I have superior ability to those in which everyone involved is about equal in ability. (-)

14. I think more of the future than of the present and past. (+)

15. I am more unhappy about doing something badly than I am happy about doing something well. (-)

16. I worry more about whether people will praise my work than I do about whether they will criticize it. (+)

17. If I had to spend the money myself I would rather have an exceptional meal out than spend less and prepare an exceptional meal at home. (-)

18. I would rather do a paper on my own than take a test. (+)

19. I would rather share in the decision-making process of a group than take total responsibility for directing the group's activities. (-)

20. I would rather try to make new and interesting meals than make more familiar meals that frequently turn out well. (+)

21. I would rather do something I enjoy than do something that I think is worthwhile but not much fun. (-)

22. I would rather try to get two or three things done quickly than spend all my time working on one project. (-)

23. If I am ill and must stay home, I use the time to relax and recuperate rather than try to read or work. (-)

24. If I were rooming with a number of girls and we decided to have a party, I would rather organize the party myself than have one of the others organize it. (+)

25. I would rather cook for a couple of gourmet eaters than for a couple who simply have huge appetites. (+)

26. I would rather that our women's group be allowed to help organize city projects than be allowed to work on the projects after they have been organized. (+)

APPENDIX B

Anagrams

Easy Anagrams

1. MNEGAA	2. TMOMEN	3. EVOTLR	4. ODELM
5. SRKTIE	6. WIHTNI	7. TEFFEC	8. WADNET
9. BOLWE	10. POURG	11. EOUHS	12. OLIECP
13. LEUPZZ	14. CHOLSO	15. IITDG	16. GENTAM
17. LRAOB	18. BUNMER	19. IUMSC	20. LMIDDE
21. RHOU	22. ETIM	23. DRWO	24. RACD
25. LASCS			

Difficult Anagrams

1. SEALGT	2. SRKTIE	3. OOLRUC	4. BNOLE
5. IUMSC	6. SPEUA	7. PAMLEX	8. GENTAM
9. AEUVL	10. ONEASS	11. GNPOSU	12. GGAWILL
13. GSRUA	14. PPOERC	15. PIMCAT	16. LDROI
17. MORBEP	18. OCBNA	19. VLIDTE	20. WITHNI
21. EMAGLE	22. EGUYD	23. TLETRE	24. HIITGUN
25. CELOUP			

APPENDIX C

Post Experimental Questionnaire

Please answer the following questions by circling the number that best represents your feeling. Take your time and answer each question carefully. Please make sure you answer all of the questions.

(1) Year of study_____ (2) Major_____

(3) Sex: ____Male ____Female (4) Age_____

(5) How many anagrams did you solve?_____

(6) How much ability do you think you have at this sort of task?

1 2 3 4 5 6 7
none average very much

(7) How hard did you try to succeed at this task?

1 2 3 4 5 6 7
not at all moderately very hard

(8) How hard did you think this task was?

1 2 3 4 5 6 7
very hard moderately not at all

(9) Try to evaluate how lucky you were in your solving.

1 2 3 4 5 6 7
not at all normal very lucky

(10) To what extent do you think the music affected your performance?

-1 -2 -3 0 +1 +2 +3
hindered no effect facilitated

(11) How would you personally evaluate your performance at this task?

1 2 3 4 5 6 7
failure average successful

(12) How satisfied are you with your performance?

1 2 3 4 5 6 7
not at all moderately very satisfied

(13) How would you expect to do on a similar task in the future?

1 2 3 4 5 6 7
very bad fair very well